2. Project Description

Cape Cod Healthcare, Inc (the "Applicant") with a principal place of business at 27 Park Street, Hyannis, MA 02601, seeks a Determination of Need (DoN) from the Massachusetts Department of Public Health for the reactivation of one (1) existing, dormant magnetic resonance imaging (MRI) machine at Cape Cod Hospital (the "Hospital") located at the same address (the "Proposed Project").

The Applicant is the largest provider of healthcare services for residents and visitors of Cape Cod. With nearly 600 physicians and 5,000 employees, Cape Cod Healthcare includes the physician organization, Medical Affiliates of Cape Cod, homecare and hospice services, a skilled nursing and a rehabilitation facility, an assisted living facility, seven urgent care centers and two acute hospitals – Cape Cod Hospital and Falmouth Hospital.

Cape Cod Hospital is the largest provider of inpatient and emergency services on Cape Cod with the only designated trauma emergency department serving the Cape and Islands. The Hospital's service area encompasses the entire Cape Cod region, with a population characterized by a high median age and a rapidly growing proportion of older adults. The Hospital operates three satellite MRI locations in addition to providing MRI services available at its main campus. All of the Hospital's MRI units are operating above 85%. This high utilization results in longer wait times, increased strain on equipment, and limited ability to accommodate emergency patients and complex inpatient cases in a timely manner.

In 2025, the Hospital replaced the only MRI machine at its main campus with a state-of-the-art unit. Upon DPH licensure of the new machine, the former MRI was deactivated and remains in place. The main campus continues to be limited to a single MRI unit, making it vulnerable to service disruptions and unable to absorb overflow from already overburdened satellite locations. This lack of redundancy threatens the Hospital's ability to provide timely imaging for trauma, stroke, and other emergent cases, which is further compounded by the Hospital's recent designation as the only Level III Trauma Center in the area.

Utilization data demonstrates that the need for MRI at the main campus has risen steadily, with utilization rates increasing from 83% in FY2022 to 89% in FY2025, and projections indicating utilization will exceed 100% by FY2027. The need for additional MRI capacity is further underscored by several recent developments: (1) the Hospital's trauma designation and the associated increase in emergency MRI volume, (2) the opening of a new inpatient floor with 32 private medical/surgical beds in early FY2026, (3) updated state regulations mandating enhanced stroke care protocols effective January 1, 2026, and (4) the region's rapidly aging population, with nearly 40% of Barnstable County residents projected to be 65 or older by 2035.

Through this application, the Hospital seeks to reactivate the existing, dormant MRI machine at the main campus, thereby enabling the operation of two MRI units at the main campus. This approach leverages an existing resource, requires no capital expenditure, and will immediately expand capacity to meet both current and future demand. The Proposed Project will support the Hospital's mission of delivering high-quality, patient-centered care to the Cape Cod region by ensuring timely access to advanced diagnostic imaging.

Factor 1: Applicant Patient Panel Need, Public Health Values and Operational Objectives

F1.a.i **<u>Patient Panel</u>:**
Describe your existing Patient Panel, including incidence or prevalence of disease or behavioral risk factors, acuity mix, noted health disparities, geographic breakdown expressed in zip codes or other appropriate measure, demographics including age, gender and sexual identity, race, ethnicity, socioeconomic status and other priority populations relevant to the Applicant's existing patient panel and payer mix.

A. <u>Cape Cod Healthcare</u>

Cape Cod Healthcare is the leading provider of healthcare services for residents and visitors of Cape Cod. With nearly 600 physicians and 5,000 employees, the Applicant has two acute care hospitals (Cape Cod Hospital and Falmouth Hospital), homecare and hospice services, a skilled nursing and a rehabilitation facility (JML Care Center), an assisted living facility (Heritage at Falmouth), and numerous health programs. It provides the majority of care for Barnstable County's year-round residents as well as the more than 5 million seasonal tourists who vacation there each summer.

Patient Panel

In FY25, approximately 57% of the Applicant's Patient Panel were female and 43% male; less than 1% identified as nonbinary or another gender. The largest percentage of patients were 65+, with 42% in this age range. 23% were aged 18-44 and 25% aged 45-64, while around 10% were below 18. The majority of Cape Cod Healthcare patients self-identified as White, while a similar percentage identified as not Hispanic or Latino.

Table 1: Cape Cod Healthcare Demographics

	FY23 (n)	FY23 (%)	FY24 (n)	FY24 (%)	FY25 (n)	FY25 (%)
Unique Patients	**200,812**	**100%**	**203,260**	**100%**	**206,701**	**100%**
Gender: Male	87,148	43%	88,392	43%	90,056	43%
Gender: Female	113,480	57%	114,673	56%	116,393	57%
Gender: Nonbinary	27	0%	30	0%	25	0%
Gender: Other/Unknown	157	0%	165	0%	227	0%
Age: 0-17	19,249	10%	20,153	10%	20,948	10%
Age: 18-44	45,566	23%	46,185	23%	47,089	23%
Age: 45-64	48,650	24%	49,817	25%	51,131	25%
Age: 65+	87,347	43%	87,105	43%	87,533	42%
Race: White	172,918	86%	176,240	87%	179,347	88%
Race: Black or African American	7,829	4%	8,723	4%	8,882	4%
Race: Asian	1,723	1%	1,826	1%	1,932	1%
Race: American Indian or Alaska Native	476	0%	473	0%	486	0%
Race: Native Hawaiian or Other Pacific Islander	115	0%	103	0%	96	0%
Race: Multiple Races	746	0%	818	0%	772	0%
Race: Other	10,075	5%	10,863	5%	11,143	5%
Race: Unknown	6,930	3%	4,214	2%	4,043	2%
Ethnicity: Hispanic/Latino	4,700	2%	5,421	3%	5,679	3%
Ethnicity: Not Hispanic/Latino	168,313	84%	173,149	85%	177,214	86%
Ethnicity: Other/Unknown	27,799	14%	24,690	12%	23,808	11%

The table below illustrates the top 20 towns comprising the Applicant's Patient Panel. In FY2025, approximately 81% of the Patient Panel resided in Barnstable County.

Table 2: Cape Cod Healthcare Geographic Origin

Town	Zip Code	FY23 (n)	FY23 (%)	FY24 (n)	FY24 (%)	FY25 (n)	FY25(%)
East Falmouth	02536	14,134	7.0%	14,545	7.2%	14,786	7.2%
Hyannis	02601	13,208	6.6%	13,613	6.7%	13,771	6.7%
Mashpee	02649	11,176	5.6%	11,336	5.6%	11,458	5.5%
Centerville	02632	8,386	4.2%	8,472	4.2%	8,582	4.2%
Harwich	02645	7,738	3.9%	7,883	3.9%	8,035	3.9%
Brewster	02631	7,606	3.8%	7,617	3.7%	7,811	3.8%
South Yarmouth	02664	7,385	3.7%	7,586	3.7%	7,627	3.7%
West Yarmouth	02673	6,785	3.4%	6,962	3.4%	7,064	3.4%
Sandwich	02563	6,824	3.4%	6,850	3.4%	6,989	3.4%
Falmouth	02540	5,910	2.9%	5,981	2.9%	6,063	2.9%
Marstons Mills	02648	5,560	2.8%	5,595	2.8%	5,708	2.8%
Buzzards Bay; Bourne	02532	5,078	2.5%	5,084	2.5%	5,165	2.5%
Yarmouth Port	02675	5,007	2.5%	5,056	2.5%	5,061	2.4%
South Dennis	02660	4,453	2.2%	4,465	2.2%	4,562	2.2%
Orleans	02653	4,237	2.1%	4,229	2.1%	4,321	2.1%
East Sandwich	02537	4,089	2.0%	4,180	2.1%	4,178	2.0%
Eastham	02642	3,422	1.7%	3,547	1.7%	3,608	1.7%
Plymouth	02360	3,086	1.5%	3,023	1.5%	3,842	1.9%
Chatham	02633	3,064	1.5%	3,084	1.5%	3,152	1.5%
Osterville	02655	2,732	1.4%	2,791	1.4%	2,809	1.4%
	Other	70,932	35.3%	71,361	35.1%	72,109	34.9%
	TOTAL	**200,812**	**100%**	**203,260**	**100%**	**206,701**	**100%**

The largest payer of the Applicant's Patient Panel is Medicare, consistently over 40% across the relevant time period. Another 14% of patients are insured by a Medicare Advantage plan. Collectively, in FY 2025, 17% of patients used either Managed Medicaid or MassHealth.

Table 3: Cape Cod Healthcare Payer Mix

Payer Mix	FY23	FY24	FY25
Commercial	24.9%	24.0%	23.6%
Managed Medicaid	13.5%	12.1%	12.1%
MassHealth	4.8%	5.2%	4.5%
Medicare	41.0%	41.2%	41.9%
Medicare Advantage	11.7%	13.0%	13.6%
Other	4.1%	4.5%	4.4%
TOTAL	**100%**	**100%**	**100%**

B. Cape Cod Hospital

Cape Cod Hospital's patient population is largely reflective of that of the Applicant's panel. Approximately 59% of patients were female and 40% were male. Like Cape Cod Healthcare, the Hospital's largest age cohort were patients 65 and over, accounting for 46% of patients. 21% were aged 18-44 and 25% aged 45-64, while fewer than 10% were below 18.

Table 4: Cape Cod Hospital Demographics

	FY23 (n)	FY23 (%)	FY24 (n)	FY24 (%)	FY25 (n)	FY25 (%)
Unique Patients	**118,964**	**100%**	**120,397**	**100%**	**123,708**	**100%**
Gender: Male	48,062	40%	48,808	41%	50,004	40%
Gender: Female	70,752	59%	71,428	59%	73,502	59%
Gender: Nonbinary	14	0%	15	0%	12	0%
Gender: Other/Unknown	136	0%	146	0%	190	0%
Age: 0-17	9,715	8%	9,857	8%	10,213	8%
Age: 18-44	24,545	21%	24,823	21%	25,719	21%
Age: 45-64	28,935	24%	29,818	25%	30,991	25%
Age: 65+	55,769	47%	55,899	46%	56,785	46%
Race: White	101,239	85%	102,702	85%	105,762	85%
Race: Black or African American	5,331	4%	5,918	5%	6,072	5%
Race: Asian	964	1%	1,018	1%	1,091	1%
Race: American Indian or Alaska Native	250	0%	244	0%	252	0%
Race: Native Hawaiian or Other Pacific Islander	80	0%	64	0%	57	0%
Race: Multiple Races	406	0%	430	0%	399	0%
Race: Other	7,424	6%	7,807	6%	7,958	6%
Race: Unknown	3,270	3%	2,214	2%	2,117	2%
Ethnicity: Hispanic/Latino	3,265	3%	3,622	3%	3,818	3%
Ethnicity: Not Hispanic/Latino	101,806	86%	104,223	87%	107,536	87%
Ethnicity: Other/Unknown	13,893	12%	12,552	10%	12,354	10%

As illustrated in the table below, approximately 84% of Cape Cod Hospital's patients resided in Barnstable County in FY2025.

Table 5: Cape Cod Hospital Geographic Origin

Patient Residence	FY23 (n)	FY23 (%)	FY24 (n)	FY24 (%)	FY25 (n)	FY25(%)
Hyannis	10,990	9%	11,301	9%	11,376	9%
Centerville	6,571	6%	6,596	5%	6,692	5%
Harwich	6,314	5%	6,328	5%	6,428	5%
South Yarmouth	6,165	5%	6,256	5%	6,361	5%
Brewster	6,180	5%	6,162	5%	6,253	5%
West Yarmouth	5,602	5%	5,732	5%	5,815	5%
Mashpee	4,349	4%	4,702	4%	4,922	4%
Yarmouth Port	4,155	3%	4,193	3%	4,178	3%
Marstons Mills	3,925	3%	3,979	3%	4,105	3%
South Dennis	3,785	3%	3,752	3%	3,788	3%
Sandwich	3,273	3%	3,374	3%	3,575	3%
Orleans	3,378	3%	3,349	3%	3,460	3%
Falmouth (inclusive of East Falmouth, Hatchville, Teaticket, Waquoit)	2,690	2%	3,064	3%	3,358	3%
Eastham	2,731	2%	2,803	2%	2,846	2%
Chatham	2,480	2%	2,429	2%	2,504	2%
Other Barnstable County	26,578	22%	27,486	23%	28,545	23%
Other	19,798	17%	18,891	16%	19,502	16%
TOTAL	**118,964**	**100%**	**120,397**	**100%**	**123,708**	**100%**

Like the Applicant, Cape Cod Hospital's payer mix is led by Medicare, representing more than 40% of patients. Medicare Advantage patients make up another 14%, Medicaid and MassHealth patients make up about 18%, while Commercial insurance patients have steadily been declining each year to 21%. Table 7 below provides a complete breakdown of Cape Cod Hospital's payer mix.

Table 6: Cape Cod Hospital Payer Mix

Payer Mix	FY23	FY24	FY25
Commercial	22%	21%	21%
Managed Medicaid	14%	12%	12%
MassHealth	6%	7%	6%
Medicare	41%	41%	42%
Medicare Advantage	13%	14%	14%
Other	4%	5%	5%
TOTAL	**100%**	**100%**	**100%**

C. Cape Cod Hospital MRI Patients

Approximately 60% of the Hospital's MRI Patient Panel were female and 40% were male, with less than 1% identifying as another gender or unknown. MRI patients skewed older than the Hospital and the Applicant's patients overall, with the largest proportion of patients were aged 65 and older, accounting for 59% of the panel. Patients aged 45-64 made up 28%, those aged 18-44 comprised 11%, and just 1% were under the age of 18.

Table 7: Cape Cod Hospital MRI Patient Demographics

	FY23 (n)	FY23 (%)	FY24 (n)	FY24 (%)	FY25 (n)	FY25 (%)
Unique Patients	**11,794**	**100%**	**12,447**	**100%**	**12,922**	**100%**
Gender: Male	4,835	41%	4,964	40%	5,075	40%
Gender: Female[1]	6,958	59%	7,475	60%	7,833	60%
Gender: Nonbinary	<11	0%	<11	0%	<11	0%
Gender: Other/Unknown	<11	0%	<11	0%	12	0%
Age: 0-17	84	1%	89	1%	99	1%
Age: 18-44	1,323	11%	1,387	11%	1,467	11%
Age: 45-64	3,127	27%	3,483	28%	3,672	28%
Age: 65+	7,260	62%	7,488	60%	7,684	59%
Race: White	10,841	92%	11,447	92%	11,894	92%
Race: Black or African American	322	3%	370	3%	377	3%
Race: Asian	47	0%	70	1%	71	1%
Race: American Indian or Alaska Native	27	0%	36	0%	27	0%
Race: Multiple Races	20	0%	21	0%	33	0%
Race: Other	392	3%	422	3%	429	3%
Race: Unknown	145	1%	81	1%	91	1%
Ethnicity: Hispanic/Latino	219	2%	244	2%	246	2%
Ethnicity: Not Hispanic/Latino	10,463	89%	11,137	89%	11,652	90%
Ethnicity: Other/Unknown	1,112	9%	1,066	9%	1,024	8%

[1] Inclusive of Nonbinary and “Other/Unknown” patient counts which cannot be provided separately due to patient confidentiality.

Table 8: Cape Cod Hospital MRI Payer Mix

More than 45% of MRI patients were covered by Medicare, with another 15% covered by Medicare Advantage plans. A total of 13% of patients had some type of Medicaid coverage. Less than 20% of MRI patients were covered by commercial insurance plans.

Payer Mix	FY23	FY24	FY25
Commercial	18.6%	19.1%	18.1%
Managed Medicaid	10.4%	8.0%	9.1%
MassHealth	4.7%	5.9%	4.4%
Medicare	46.0%	46.9%	49.0%
Medicare Advantage	15.5%	15.5%	14.7%
Other	4.8%	4.6%	4.7%
TOTAL	**100%**	**100%**	**100%**

In FY2025, there was significant overlap in the geographic origin between the patients utilizing the Hospital's satellite MRIs and those who utilized the MRI at the Hospital's main campus. For example, slightly more than half of the Hospital's patients from West Yarmouth received MRI services at the main campus while the rest used a satellite MRI. This trend is similar for other patient origins, such as Hyannis, South Yarmouth, and Dennis Port.

Table 9: Cape Cod Hospital MRI Use

Patient Origin	All MRI Locations (#)	All MRI Locations (%)	Main Campus Only (#)	Main Campus Only (%)
Hyannis	1036	8%	464	9%
Harwich	833	6%	246	5%
Centerville	749	6%	304	6%
South Yarmouth	591	5%	302	6%
Brewster	772	6%	254	5%
Yarmouth Port	505	4%	218	4%
Marston Mills	462	4%	169	3%
Orleans	491	4%	173	3%
Mashpee	568	4%	203	4%
West Yarmouth	470	4%	253	5%
South Dennis	453	4%	178	4%
Sandwich	406	3%	180	4%
Eastham	349	3%	99	2%
East Falmouth, Hatchville, Teaticket, Waquoit	379	3%	108	2%
Chatham	318	2%	104	2%
East Sandwich	280	2%	116	2%
Osterville	265	2%	107	2%
Dennis	249	2%	112	2%
Dennis Port	197	2%	98	2%
Provincetown	233	2%	71	1%
Cotuit	190	1%	65	1%
Other	3,126	24%	1,240	24%
Total	**12,922**	**100%**	**5,064**	**76%**

F1.a.ii **Project Need:**

Provide supporting data to demonstrate the need for the Proposed Project. Such data should demonstrate the disease burden, behavioral risk factors, acuity mix, health disparities, or other objective Patient Panel measures as noted in your response to Question F1.a.i that demonstrates the need that the Proposed Project is attempting to address. If an inequity or disparity is not identified as relating to the Proposed Project, provide information justifying the need. In your description of Need, consider the principles underlying Public Health Value (see instructions) and ensure that Need is addressed in that context as well.

Cape Cod Hospital is the largest provider of inpatient, outpatient, and emergency care on Cape Cod. Each year, it serves more than 100,000 patients, with 80,000 emergency visits, 17,900 inpatient discharges, and more than 17,000 MRI scans across four of its locations. Each of the MRI machines licensed to the Hospital are currently operating above the Applicant's target utilization of 80%, resulting in longer wait times and increased strain on the existing MRI machines, which will continue to be overburdened as demand for MRI increases with an aging population.

In 2025, the Hospital replaced the only MRI on its main campus with a new machine in a newly constructed MRI suite. Upon licensing of the new machine by DPH, the previous MRI machine was deactivated, though it remains intact and in place. Given the main campus is limited to a single MRI machine, it is vulnerable to service disruptions during both scheduled and unscheduled downtime, and unable to accommodate emergency cases or overflow from satellite locations that are already at capacity. Due to the growing need for imaging, the Hospital cannot provide adequate access for its Patient Panel to MRI with the existing machines. Moreover, with recent changes at the Hospital and state level as detailed below, the Hospital will not be able to meet demand for timely access to MRI at the main campus.

Therefore, the Applicant seeks to leverage the availability of the Hospital's deactivated MRI machine to accommodate current and projected need for MRI services and create necessary redundancy at the main campus, without any capital expenditure. By operating both MRI machines at the main campus, the Hospital can ensure continuous access to MRI while simultaneously optimizing utilization across its MRI locations, in turn reducing patient wait times for all MRI patients and ultimately extending the lifespan of each machine supporting the long-term sustainability of the Hospital's MRI infrastructure.

Historical Utilization

1. Cape Cod Hospital's Satellite MRI Service

In addition to the MRI unit on the Hospital's main campus, Cape Cod Hospital operates two (2) MRI units across three (3) satellites to meet the outpatient diagnostic MRI needs of its Patient Panel. As illustrated in the table below, MRI utilization across the three satellite locations was consistently above 80%. The Wilkens Outpatient Medical Complex, located in Hyannis ("Wilkens"), operates the Applicant's only 3T MRI. In FY2025, it averaged 88% utilization despite extended hours of operation totaling over 100 operating hours per week. The Fontaine Outpatient Center in Harwich ("Fontaine"), and Stoneman Outpatient Center in Sandwich ("Stoneman"), share a mobile MRI unit. In FY2025, Fontaine operated at 91% utilization, while Stoneman's MRI operated at 88% with wait times averaging 7 days. This utilization demonstrates the significant need for additional MRI capacity.

Table 10: Satellite Utilization	Days/Hours of Operation	Operating Hours per week	FY25 Utilization
CCH-Wilkens	M-F: 7am to 11pm; SaSu: 7am to 7pm	104	88%
CCH-Fontaine	MWF: 7am to 7pm; Sa: 8:30am to 4pm	43.5	91%
CCH-Stoneman	TTh: 7:30am to 5:30pm	20	88%

In FY2025, the Hospital's satellite MRI locations performed 11,277 outpatient scans. This represents a 14% increase in outpatient MRI volume at the satellite locations since FY2022, including a 39% increase at Fontaine. The table below illustrates historical scan volume at each of the satellite locations.

Table 11: Satellite Volume	FY22	FY23	FY24	FY25	FY22-FY25 Change
CCH-Wilkens	1,867	2,116	2,372	2,594	9%
CCH-Fontaine	6,891	6,944	7,470	7,513	39%
CCH-Stoneman	1,123	1,168	1,102	1,170	4%
Total Volume	**9,881**	**10,228**	**10,944**	**11,277**	**14%**

With the satellite units operating in excess of 85% capacity and the historical trend of increasing utilization, the Hospital cannot accommodate more outpatient volume at its satellites.

2. Cape Cod Hospital's Main Campus MRI Service

As noted above, Cape Cod Hospital currently only has one MRI in operation at the main campus for inpatients, outpatients, and emergency patients. It offers extended hours of operation from 6:30 a.m. to 11:00 p.m. on weekdays, 7:00 a.m. to 7:00 p.m. on weekends, and is available 24/7 for emergencies. Utilization[2] at this site has steadily increased from 83% in 2022 to 89% in FY2025, reflecting a 6% increase in utilization. Moreover, total volume increased from 6,132 in FY2022 to 6,537 in FY2025, a growth of 6.6%. As a result of high utilization, wait times have increased for all patients. In FY25, inpatient and observation patients waited an average of 22 hours for MRI, a 13% increase from FY24. Similarly, emergency department (ED) patients waited 15.5 hours in FY25 for MRI, a 15% increase from FY24. These delays in receiving MRI negatively impact hospital throughput, including longer inpatient stays and increased ED boarding. Accordingly, the Hospital requires additional capacity at the main campus to ensure timely access for emergency and inpatients.

Table 12: Main Campus MRI Historical Utilization	FY22	FY23	FY24	FY25
Emergency	741	609	541	602
Inpatient	2,171	2,348	2,672	2,635
Outpatient	3,220	3,014	3,019	3,300
Total Volume	**6,132**	**5,971**	**6,232**	**6,537**
Utilization	**83%**	**81%**	**84%**	**89%**

[2] Utilization is based on an annual maximum capacity of 7,384 scans: (Weekly Hours of Operation (106.5) x 52) x 60 (minutes) divided by Average Scan Time (45 min) = 7,384 scans per year.

3. Current and Future Need for MRI

Cape Cod Hospital is experiencing unprecedented demand for MRI services, driven by the Hospital's recent designation as a Level III Trauma Center, the addition of new inpatient beds, evolving state regulations, and the region's rapidly aging population. With MRI utilization already exceeding 85% across each of the Hospital's MRI locations, and further increases in demand projected in the coming years, the need for expanded MRI capacity and system redundancy has become critical. The Proposed Project will ensure timely access to MRI for emergency and inpatient care, help decompress overburdened satellite sites, and reduce patient wait times. By proactively addressing the increasing MRI needs of its Patient Panel, the Hospital will be able to maintain high-quality, timely imaging services for its growing and complex patient population.

In January 2025, Cape Cod Hospital was designated a Level III Trauma Center, the only hospital on the Cape and Islands to hold a trauma designation. The Hospital attributes the 11.3% increase in emergency MRI volume from FY2024 to FY2025 in part to the Hospital's new trauma designation. Moreover, while MRI volume in FY2025 increased to the Hospital's highest level over the last four years, the Hospital anticipates several recent changes will significantly impact its patients' need for MRI beginning in FY2026.

In addition, the Hospital is in the process of opening a new inpatient floor with 32 private medical/surgical beds in the first quarter of FY2026.[3] With the opening of the new medical/surgical unit, the Hospital's licensed bed count will increase from 197 to 229. Based on historical inpatient MRI volume, the Hospital projects the new beds will increase MRI volume by 429 scans beginning in FY2026. Furthermore, the need for MRI by inpatients at the Hospital is expected to increase by 7% each year, consistent with historical year-over-year volume increases. Lastly, DPH recently adopted updated stroke care regulations which go into effect on January 1, 2026. As a result of the change in stroke care requirements for acute care hospitals, the Hospital anticipates emergency MRI volume will increase 15% in FY2026 and will continue to drive increased need for emergency MRIs across the Proposed Project's projection years.

Moreover, the need to reactivate the Hospital's dormant MRI unit is underscored by the Cape's unique demographic profile. As of 2022, Barnstable County residents had a median age of 55.6 years, the highest in Massachusetts and well above the state median of 40.1 years and the national median of 38.9 years.[4] Notably, 23.7% of Cape Cod residents are aged 70 or older, compared to 12.2% statewide and 11.8% nationally.[5] Projections indicate that by 2035, nearly 40% of Barnstable County's population will be 65 years or older.[6] This aging population is expected to drive increased demand for imaging services, including those tied to inpatient admissions. By leveraging an existing resource with no project costs, the Hospital will be better positioned to meet the community's growing imaging needs, improve patient outcomes, and extend the lifespan of its MRI equipment.

As noted earlier, the Hospital's three satellite locations are operating in excess of 85% capacity, with an average utilization of 89% in FY 2025. In order to evenly distribute utilization across units and improve access to the convenient satellite locations, the Hospital will shift volume from its satellites

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[3] Amendment # CCHC23122109-AM (Significant Change), *see https://www.mass.gov/info-details/cape-cod-healthcare-inc-amendment*

[4] Summary of U.S. Census Bureau's 2022 County Characteristics Estimates for Massachusetts Counties, August 8, 2023. https://donahue.umass.edu/business-groups/economic-public-policy-research/massachusetts-population-estimates-program/population-estimates-by-massachusetts-geography/by-county

[5] *Id.*

[6] https://donahue.umass.edu/business-groups/economic-public-policy-research/massachusetts-population-estimates-program/population-projections

to the main campus. This will not only improve utilization and wait times but will prolong the useful life of the machines by ensuring they do not operate at maximum capacity.

For the reasons detailed above, the Hospital projects an additional 776 scans in FY2026, primarily driven by a greater need for inpatient and emergency MRI scans by trauma and stroke patients, as well as the increased volume of the Hospital's inpatients. Without the ability to use the dormant MRI unit, utilization at the main campus will be 97%, climbing to 108% in FY2027, at which point significant delays will impact care delivery. The Hospital's main campus projections based on these factors are detailed in the table below.

Table 13: Projected Utilization	**FY26**	**FY27**	**FY28**	**FY29**	**FY30**	**FY31**
Emergency – Trauma, Stroke	751	938	1,076	1,214	1,370	1,545
Inpatient – New beds	3,064	3,360	3,595	3,847	4,116	4,404
Outpatient – 5% growth	3,498	3,707	3,929	4,165	4,415	4,680
Total	7,313	8,004	8,601	9,226	9,901	10,629
Utilization with Existing Capacity	**99%**	**108%**	**116%**	**125%**	**134%**	**144%**

Alternatively, with the Proposed Project, the Hospital will be able to accommodate the increased need for MRI and decompress its satellite MRIs so that each of the Hospital's machines is able to run at a lower utilization.

Table 14: Projected Utilization	*FY26*	**FY27**[7]	**FY28**	**FY29**	**FY30**	**FY31**
Emergency – Trauma, Stroke	*751*	938	1,076	1,214	1,370	1,545
Inpatient – New beds	*3,064*	3,360	3,595	3,847	4,116	4,404
Outpatient – 5% Growth **and Satellite Decompression**	*3,498*	5,306	5,624	5,962	6,319	6,699
Total	*7,313*	9,603	10,296	11,023	11,805	12,648
Utilization with Proposed Project	*99%*	**65%**	**70%**	**75%**	**80%**	**86%**

Lastly, as the existing MRI unit will be taxed by increased utilization based on the Hospital's projections, it is expected that the amount of downtime will increase each year, above and beyond the minimum of 12 hours of preventative maintenance required. A second MRI unit is necessary to not only mitigate planned downtime on the existing unit by shifting scans to a second MRI unit, but to account for unplanned disruptions or multiple emergency patients. This is especially critical as the Cape and Islands only trauma hospital. Further, by reducing over-utilization of the current unit, the Hospital will be able to extend its useful life, delaying the need for replacement and significant disruption for patients. By planning for projected need, the Hospital can create redundancy in its MRI service, thereby mitigating planned and unplanned disruptions and ensuring timely access to diagnostic imaging for emergency and inpatients, including patients presenting with stroke symptoms.

In summary, the Proposed Project represents a strategic and timely solution to the Hospital's escalating MRI utilization. With demand for MRI services already averaging 89% across both the main campus and satellite locations, and with further growth expected due to the Hospital's recent trauma designation, expanded inpatient capacity, changes to stroke care state regulations, and the region's aging population, the Hospital faces growing pressure to ensure high-quality, timely access to

[7] If this DoN is approved, the Hospital anticipates the dormant MRI would be licensed and open to patients in Q4 of FY2026. Therefore, there would be no impact to utilization at the main campus or the Hospital's satellites in FY2026, as illustrated in Table 14.

diagnostic imaging. By reactivating an existing MRI unit at the main campus at no cost, the Hospital can immediately reduce wait times for ED patients and inpatients, alleviate overburdened sites, and provide essential system redundancy. This proactive approach will not only address current capacity challenges but also ensure high-quality care for the region, allowing the Hospital to meet both present and future MRI imaging needs without additional capital investment.

F1.a.iii **Competition:**

Provide evidence that the Proposed Project will compete on the basis of price, total medical expenses, provider costs, and other recognized measures of health care spending. When responding to this question, please consider Factor 4, Financial Feasibility and Reasonableness of Costs.

The Proposed Project will compete on the basis of price, total medical expenses, and provider costs because it will promote better health outcomes, does not require a capital expenditure and will not increase total medical expenses or provider costs. Moreover, the main objective of the Proposed Project is to meet the Hospital's patients' existing and projected need for MRI, rather than expanding an existing service line. Hospitals require timely access to MRI in order to deliver timely care, improve health outcomes, and contain overall medical costs. As discussed throughout the Application, the Hospital's existing MRI service, inclusive of all locations, is operating at 89% utilization, which is causing delays for accessing MRI, particularly for outpatients. Operating a second MRI unit at the main campus will allow the Hospital to ensure access to MRI imaging that expedites diagnosis and treatment, thereby initiating care when the acuity of a patient's medical condition is less costly to treat, positively impacting TME.

Importantly, the Proposed Project does not require a capital expenditure to implement. The proposed second MRI unit was taken offline in 2025 and a new machine licensed in its place. As a result, there is no capital expenditure to reactivate the second MRI. Furthermore, the price of MRI services will not be impacted by the addition of a second MRI unit at the main campus.

Next, the Proposed Project will improve access to an existing service line. The addition of a second machine will primarily decompress the existing units which will not only decrease wait times, but provide necessary redundancy so that any downtime of one machine can be offset by the availability of the other machine. Lastly, the use of a second machine on the Hospital's main campus will lengthen the life expectancy of the new machine since it will be able to operate at a more manageable capacity. Based on these considerations, the Proposed Project is a cost-effective measure to improve access to imaging services for inpatient, outpatients, and emergency patients.

F1.b.i. **Public Health Value/Evidence-Based:**

Provide information on the evidence-base for the Proposed Project. That is, how does the Proposed Project address the Need that Applicant has identified.

A. Clinical Application of MRI in Emergencies.

Timely access to MRI is important for correct assessment of patients presenting to the ED with acute neurological symptoms,[8] including new or worsening neurological deficits, rapidly progressive headache, and suspicion of intracranial infection.[9] While CT scans are often used for acute

[8] Mathieu, J., & Talbott, J. F. (2022). Magnetic resonance imaging for spine emergencies. *Magnetic Resonance Imaging Clinics*, *30*(3), 383-407.

[9] Galanaud, D., & Gupta, R. (2022). MR imaging for acute central nervous system pathologies and presentations in emergency department. *Magnetic Resonance Imaging Clinics of North America*, *30*(3), 371-381.

neurologic evaluations, MRI provides a more comprehensive analysis due to its exceptional soft-tissue contrast and lack of ionizing radiation.[10]

Emergent MRI is specifically indicated for patients with new or worsening neurologic concerns and clinical suspicion for infection, neoplasm, or other spinal emergencies, since delayed imaging can result in progression of deficits, irreversible injury, and missed opportunities for timely intervention.[11] According to the American College of Radiology's Appropriateness Criteria, MRI is the preferred method for most neurologic symptoms, including red flag signs or symptoms, such as suspected infection, immunosuppression, chronic steroid use, suspicion for cancer, persistent or progressive symptoms following conservative therapy, and spinal cord emergencies.[12] MRI is the most sensitive and specific diagnostic tool used to evaluate the following spinal traumas: spinal cord injury, extra-axial lesions, ligament injury, and spinal fractures.[13] MRI is the superior option to reliably identify compressive spinal cord pathologies that, if not diagnosed and treated in a timely manner, can pose an immediate risk of significant morbidity or mortality.[14] Limited MRI availability in the ED is the main reason it's not a more established standard, but its high diagnostic value in acute neurologic and spinal emergencies is well established.[15]

B. Stroke Care.

In 2025, the Massachusetts Department of Public Health adopted revised hospital licensure regulations and issued guidance requiring EDs to provide acute stroke ready services.[16] The revised regulations and corresponding guidance are effective January 1, 2026. Under the revised regulations, all Massachusetts ED will be required to develop and implement written protocols regarding stroke care.[17] The new requirements include protocols for the triage and treatments of patients presenting with stroke symptoms, including having systems in place to ensure a prompt initial diagnostic test is done, making access to an MRI even more vital.[18] MRIs are considered to be the first-line response to a suspected stroke because of the positive outcomes associated with early detection.[19] Delays in MRI can hinder timely and targeted therapeutic decision-making and may increase patients' hospital length of stay and subsequent total hospitalization costs.[20] Specifically, ensuring that an MRI is performed within 12 hours of admission to an ED reduces length of stay in ischemic stroke patients.[21]

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[10] Buller, M., & Karis, J. P. (2017). Introduction of a dedicated emergency department MR imaging scanner at the Barrow Neurological Institute. *American Journal of Neuroradiology*, *38*(8), 1480-1485.
[11] Mathieu, J., & Talbott, J. F. (2022). Magnetic resonance imaging for spine emergencies. *Magnetic Resonance Imaging Clinics*, *30*(3), 383-407.
[12] American College of Radiology: Appropriateness Criteria. https://acsearch.acr.org/list. Accessed December 27, 2016.
[13] Demir, M. C., & Özdamar, Y. (2021). Utilization trend of magnetic resonance imaging examinations in an academic emergency department and the weekend effect. *Journal of Clinical Medicine of Kazakhstan*, *18*(3), 52-57.
[14] Mathieu, J., & Talbott, J. F. (2022). Magnetic resonance imaging for spine emergencies. *Magnetic Resonance Imaging Clinics*, *30*(3), 383-407.
[15] Popp, D., Kerschbaum, M., Mahr, D., Thiedemann, C., Ernstberger, A., Wiesinger, I., ... & Schicho, A. (2021). Necessity of immediate MRI imaging in the acute care of severely injured patients. *Medicina*, *57*(9), 982.
[16] 105 CMR 130.1402 - 130.1403;
[17] 105 CMR 130.1402 - 130.1403.
[18] *See* Memo from Department of Public Health regarding Updated Regulatory Requirements for Stroke Services. https://www.mass.gov/doc/105-cmr-130-hospital-licensure/download.
[19] Sagar, M. V., Gandrup, K. L., Jensen, D., Krag, C. H., Boesen, M. P., Raaschou, H., ... & Kruuse, C. (2024). Patient flow analysis with fast-track MRI for suspected stroke in the emergency department and associated non-comprehensive stroke center. *Therapeutic Advances in Neurological Disorders*, *17*, 17562864241303251.
[20] Shoghli, A., Chow, D., Kuoy, E., & Yaghmai, V. (2023). Current role of portable MRI in diagnosis of acute neurological conditions. *Frontiers in Neurology*, *14*, 1255858.
[21] Manwani, B., Rath, S., Lee, N. S., Staff, I., Stretz, C., Modak, J., & Finelli, P. F. (2019). Early magnetic resonance imaging decreases hospital length of stay in patients with ischemic stroke. Journal of Stroke and Cerebrovascular Diseases, 28(2), 425-429.

Surgical options, such as thrombectomy, may be necessary to remove a blood clot from an artery or vein to restore blood flow to vital organs and reduce the risk of death or permanent disability.[22] Following a thrombectomy, post-treatment MRI is essential for identifying complications such as reperfusion-related hemorrhage and edema and to inform the timing and intensity of antithrombotic medication.[23] The extent of reperfusion in post-thrombectomy, combined with infarct volume and location assessed by MRI, provides significant prognostic value, while perfusion-weighted MRI and permeability analysis can detect ongoing perfusion issues and predict hemorrhagic complications.[24] Delays in MRI can thus hinder rapid targeted interventions and negatively impact patient outcomes.

C. Cardiac MRI

Cardiovascular MRI ("CMR") are used to assess cardiovascular morphology, ventricular function, myocardial perfusion, tissue characterization, flow quantification, and coronary artery disease.[25] In emergency settings, CMRs are proven essential for issues including myocarditis, pericarditis, myocardial infarction with non-obstructive coronary arteries, takotsubo cardiomyopathy, acute coronary syndrome, and pulmonary embolism.[26] CMR can identify the myocardial area at risk, quantify microvascular obstruction, and detect intramyocardial hemorrhage,[27] enabling patient risk stratification when performed shortly after chest pain onset.[28] Additionally, MRI provides prognostic information through novel parametric mapping for tissue characterization.[29] Integrating CMR into emergency care pathways can reduce inappropriate ED discharges and decrease mortality rates from undiagnosed cardiac conditions, while also aiding in accurately classifying patients with atypical features for tailored treatment in complex emergency scenarios.[30]

D. Outpatient MRI in the Hospital Setting

Certain patients, such as those with pacemakers, implantable cardiac defibrillators, or cochlear implants, require specialized precautions for MRI due to the risk of device malfunction or patient harm.[31][32] Hospital-based MRI services can provide the necessary safety protocols that other outpatient MRI locations may not be able to take, including: pre-MRI which includes reducing risk and tailoring emergency preparedness to the patient; adjusting equipment to reduce heating and magnetic risk; personnel availability including having a radiologist and cardiologist present while also continuously monitoring electrocardiogram (ECG) blood pressure, and oxygen; emergency

[22] The Cleveland Clinic. (2022). Thrombectomy: What it is and Procedure Details. Retrieved from https://my.clevelandclinic.org/health/treatments/22897-thrombectomy.
[23] Ng, F. C., & Campbell, B. C. (2019). Imaging after thrombolysis and thrombectomy: rationale, modalities and management implications. *Current Neurology and Neuroscience Reports*, *19*(8), 57.
[24] Ng, F. C., & Campbell, B. C. (2019). Imaging after thrombolysis and thrombectomy: rationale, modalities and management implications. *Current Neurology and Neuroscience Reports*, *19*(8), 57.
[25] Tseng, W. Y. I., Su, M. Y. M., & Tseng, Y. H. E. (2016). Introduction to cardiovascular magnetic resonance: technical principles and clinical applications. *Acta Cardiologica Sinica*, *32*(2), 129.
[26] Liguori, C., Tamburrini, S., Ferrandino, G., Leboffe, S., Rosano, N., & Marano, I. (2022). Role of CT and MRI in Cardiac Emergencies. *Tomography*, *8*(3), 1386-1400.
[27] Ferreira, V.M.; Schulz-Menger, J.; Holmvang, G.; Kramer, C.M.; Carbone, I.; Sechtem, U.; Kindermann, I.; Gutberlet, M.; Cooper, L.T.; Liu, P.; et al. Cardiovascular magnetic resonance in nonischemic myocardial inflammation: Expert recommendations. *J. Am. Coll. Cardiol.* 2018, *72*, 3158–3176.
[28] Liguori, C., Tamburrini, S., Ferrandino, G., Leboffe, S., Rosano, N., & Marano, I. (2022). Role of CT and MRI in Cardiac Emergencies. *Tomography*, *8*(3), 1386-1400.
[29] Liguori, C., Tamburrini, S., Ferrandino, G., Leboffe, S., Rosano, N., & Marano, I. (2022). Role of CT and MRI in Cardiac Emergencies. *Tomography*, *8*(3), 1386-1400.
[30] Zareiamand, H., Darroudi, A., Mohammadi, I., Moravvej, S. V., Danaei, S., & Alizadehsani, R. (2023). Cardiac magnetic resonance imaging (CMRI) applications in patients with chest pain in the emergency department: a narrative review. *Diagnostics*, *13*(16), 2667.
[31] Bovenschulte, H., Schlüter-Brust, K., Liebig, T., Erdmann, E., Eysel, P., & Zobel, C. (2012). MRI in patients with pacemakers: overview and procedural management. *Deutsches Ärzteblatt International*, *109*(15), 270.
[32] Fierens, G., Standaert, N., Peeters, R., Glorieux, C., & Verhaert, N. (2021). Safety of active auditory implants in magnetic resonance imaging. *Journal of Otology*, *16*(3), 185-198.

precautions including immediate response to cardiac emergencies; appropriate device programming such as possible deactivation or asynchronous pacing; and post-MRI precautions including device inspection and ongoing monitoring.[33] For cochlear implants, removing the implantable magnet is often recommended to minimize the risk of dislocation and enhance image quality in the tissue near the implant site.[34] The removal and replacement can be done same-day under local anesthesia when performed in a hospital.[35] These capabilities, often unavailable at outpatient imaging centers, underscore the need for hospital-based MRI access for high-risk patients.

F1.b.ii Public Health Value /Outcome-Oriented:

Describe the impact of the Proposed Project and how the Applicant will assess such impact. Provide projections demonstrating how the Proposed Project will improve health outcomes, quality of life, or health equity. Only measures that can be tracked and reported over time should be utilized.

The Proposed Project will provide public health value by improving access to high-quality MRI for Cape Cod residents, thereby improving health outcomes and patient satisfaction. To assess the impact of the Proposed Project, the Applicant will monitor and report following quality metrics.

1. **Wait Time:** Timely access to MRI services is critical for early diagnosis and treatment, contributing to improved health outcomes and patient satisfaction. The Applicant will monitor and report the average time patients wait from the date the MRI is ordered to the date it is scheduled.

   Measure: Staff will analyze average patient wait times (from date procedure is ordered to date procedure is scheduled) quarterly to ensure adequate progress and identify any opportunities for improvement.

   Baseline: Current average wait time is 7.3 days.

   Projections and Goal: Utilization of a second MRI will reduce wait times for MRI imaging services by 0.5 days per year, with the 5-year goal being a wait time of only 4 days.

2. **Patient Satisfaction:** Patients who are satisfied with their care are more likely to seek additional treatment when needed. The Applicant will continue to review patient satisfaction levels related to Hospital MRI from patient surveys.

   Measure: Staff will review responses related to patient surveys related to MRI services, specifically focusing on patient response regarding their likelihood to recommend Hospital MRI services. Staff will review survey data quarterly.

   Baseline: 85.19% of patients responded with the highest score.

   Projections and Goal: The Hospital's goal is to improve this measure of patient satisfaction by 1.5% per year, with the ultimate goal of reaching 92% by the end of the 5th year.

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[33] Bovenschulte, H., Schlüter-Brust, K., Liebig, T., Erdmann, E., Eysel, P., & Zobel, C. (2012). MRI in patients with pacemakers: overview and procedural management. *Deutsches Ärzteblatt International*, *109*(15), 270.

[34] Fierens, G., Standaert, N., Peeters, R., Glorieux, C., & Verhaert, N. (2021). Safety of active auditory implants in magnetic resonance imaging. *Journal of Otology*, *16*(3), 185-198.

[35] Migirov L, Wolf M. Magnet removal and reinsertion in a cochlear implant recipient undergoing brain MRI. ORL J Otorhinolaryngol Relat Spec. 2013;75(1):1-5. doi: 10.1159/000346239. Epub 2013 Jan 30. PMID: 23364345.

F1.b.iii **Public Health Value /Health Equity-Focused:**

For Proposed Projects addressing health inequities identified within the Applicant's description of the Proposed Project's needbase, please justify how the Proposed Project will reduce the health inequity, including the operational components (e.g. culturally competent staffing). For Proposed Projects not specifically addressing a health disparity or inequity, please provide information about specific actions the Applicant is and will take to ensure equal access to the health benefits created by the Proposed Project and how these actions will promote health equity.

The Proposed Project will allow the Applicant to ensure timely access to MRI services for all Hospital patients. The Applicant is committed to developing, implementing, and continuously evaluating policies, procedures, and an organizational culture that fosters an inclusive and equitable environment for all patients, visitors, and staff. The Applicant does not discriminate based on ability to pay or payer source, physical ability, sensory or speech limitations, or religious, spiritual or cultural beliefs. The Applicant provides all patients with appropriate communication resources and culturally competent care.

A. Ensuring Language Accessibility

The Applicant is committed to ensuring comprehensive language access and culturally and linguistically appropriate services across all its facilities, including the Hospital. Recognizing the diverse linguistic needs of its growing patient population, serving individuals who speak over 40 languages, the Applicant has developed a robust interpreter services program that operates 24/7/365. This program is staffed by a dedicated team of 25 interpreters, supplemented by on-demand telephonic and video remote interpretation services in partnership with HIPAA-compliant vendors. This program guarantees immediate access to qualified interpreters for both routine and emergency care.

The Interpreter Services Department is responsible for ensuring that all interpreter encounters are properly documented in the electronic health record, flagging patients' primary languages at registration, and providing written educational materials and consent forms in patients' preferred languages. The Department also manages the translation of written materials, maintains a repository of translated documents, and ensures the non-use of unqualified interpreters or translation apps to safeguard accuracy and confidentiality. Additionally, annual in-service trainings are delivered hospital-wide to ensure all clinical and non-clinical staff understand how to access and work with interpreters, and bilingual staff undergo formal language proficiency assessments before using their language skills in patient care activities. Lastly, the Applicant continuously looks to improve its language accessibility efforts by collecting and analyzing data on interpreter utilization for specific areas that need to be addressed.

B. Promoting Cultural Competency

A culturally competent workforce ensures the delivery of care is individually tailored to meet each patient's social, cultural and linguistic needs. To achieve this goal, the Applicant requires all newly hired employees to complete a cultural competency training. The training is currently offered virtually via Cape Cod Healthcare's Learning Management System, HealthStream. In addition, the Applicant provides in-person trainings on cultural competence to its clinical departments, including oncology, rehabilitation, behavioral health, psychiatric, and emergency medicine. The Applicant is committed to ensuring its

staff are trained in cultural competency in order to reduce information gaps that can create barriers to care.

F1.b.iv **Provide additional information to demonstrate that the Proposed Project will result in improved health outcomes and quality of life of the Applicant's existing Patient Panel, while providing reasonable assurances of health equity.**

The Proposed Project will result in improved public health outcomes and quality of life for the Patient Panel by improving access to timely diagnostic imaging, which is essential for patient satisfaction, early diagnosis, and effective treatment planning. By alleviating potential bottlenecks and reducing delays in imaging, particularly for the Hospital's large elderly population and patients with complex care needs, patients will benefit from faster diagnoses and more streamlined continuity of care. This is especially important for trauma and stroke patients who may require immediate access to MRI. Ensuring timely access to MRI for these patients will improve health outcomes and quality of life. Moreover, additional MRI capacity will also allow the Hospital to better accommodate inpatients who may not be able to return for outpatient imaging, ensuring that critical exams are completed prior to discharge and facilitating more comprehensive, coordinated care.

The Hospital also is committed to advancing each patient's health by providing comprehensive interpreter services, supporting cultural competency among staff, and ensuring that all patients, regardless of language, ability, or background, have the same access to care. In addition, universal screening for social determinants of health enables the Hospital to identify and address barriers such as transportation, housing, and food insecurity, connecting patients to appropriate community resources to support their overall well-being. Through these combined efforts, the Proposed Project will not only improve clinical outcomes but also enhance the overall patient experience and quality of life for all patients, with a strong focus on integrated, patient-centered care for all.

F1.c **Provide evidence that the Proposed Project will operate efficiently and effectively by furthering and improving continuity and coordination of care for the Applicant's Patient Panel, including, how the Proposed Project will create or ensure appropriate linkages to patients' primary care services.**

The Proposed Project will significantly enhance the efficiency and effectiveness of care for the Applicant's Patient Panel by reducing delays and rescheduling that often occur when emergency cases take priority over scheduled outpatient imaging. With an aging patient panel, access to timely diagnostic imaging is crucial for early detection and management of patients' conditions. A second MRI machine at the Hospital's main campus will not only minimize interruptions in the event of equipment downtime but also minimize disruptions for scheduled patients caused by emergency cases. Ensuring timely access to MRI for all patients will strengthen the Applicant's ability to maintain continuity of care by ensuring that treating physicians receive timely imaging results, facilitating faster diagnosis, treatment planning, and requisite follow-up for patients.

F1.d **Provide evidence of consultation, both prior to and after the Filing Date, with all Government Agencies with relevant licensure, certification, or other regulatory oversight of the Applicant or the Proposed Project.**

As a broad range of input is valuable in the planning of a project, the Applicant consulted with individuals at various regulatory agencies regarding the Proposed Project. The following agencies were consulted regarding this Project:

- Massachusetts Department of Public Health
- Massachusetts Executive Office of Health and Human Services
- Health Policy Commission
- Center for Health Information and Analysis
- The Centers for Medicare & Medicaid Services

F1.e.i **Process for Determining Need/Evidence of Community Engagement:**

For assistance in responding to this portion of the Application, Applicant is encouraged to review *Community Engagement Standards for Community Health Planning Guideline*. With respect to the existing Patient Panel, please describe the process through which Applicant determined the need for the Proposed Project.

The Applicant is proposing the operation of a second MRI machine at the Hospital's main campus to provide expanded capacity and more timely care based upon the growing demand for MRI. To ensure community engagement around the Proposed Project, the Applicant sought to inform the Hospital's Patient Panel and relevant health equity committees on the need for the Proposed Project as well as solicit feedback on the design, layout and experience of the Proposed Project. To that end, the Applicant took the following actions:

- Presented to the Hospital's Patient and Family Advisory Council on July 21, 2025.
- Presented to the Hospital's Community Health Committee on September 22, 2025.
- Presented to the Hospital's Health Equity Committee on September 23, 2025.

First, the Hospital spoke with 10 members of its Patient and Family Advisory Council and 14 hospital representatives on July 21, 2025. The Proposed Project was then presented to the Hospital's Community Health Committee on September 22, 2025, with ten (10) members of the Committee and four (4) Hospital representatives. Next, the Hospital presented the Proposed Project to the Health Equity Committee on September 23, 2025. This meeting was attended by five (5) committee members and 12 hospital representatives, including officers, physicians, and administrative staff. During each meeting, Hospital representatives spoke about the need for the Proposed Project and why the Proposed Project is necessary for the provision of high-quality, patient-centered care to the Hospital's Patient Panel. Feedback was overwhelmingly positive, with no concerns shared but instead expressing optimism and agreement that the Proposed Project would benefit hospital patients and the broader community.

F1.e.ii **Please provide evidence of sound Community Engagement and consultation throughout the development of the Proposed Project. A successful Applicant will, at a minimum, describe the process whereby the "Public Health Value" of the Proposed Project was considered, and will describe the Community Engagement process as it occurred and is occurring currently in, at least, the following contexts: Identification of Patient Panel Need; Design/selection of DoN Project in response to "Patient Panel" need; and Linking the Proposed Project to "Public Health Value".**

To ensure sound community engagement throughout the development of the Proposed Project, the Applicant took the actions detailed in Factor F1.e.i. In addition, the Applicant published a legal notice

announcing the Proposed Project in the *Cape Cod Times* on Tuesday, November 11, 2025. A copy of the notice was posted prominently on the Hospital's website. Please refer to Appendix 7 for copies of the legal notice.

Factor 2: Health Priorities

Addresses the impact of the Proposed Project on health more broadly (that is, beyond the Patient Panel) requiring that the Applicant demonstrate that the Proposed Project will meaningfully contribute to the Commonwealth's goals for cost containment, improved public health outcomes, and delivery system transformation.

F2.a. **Cost Containment:**

Using objective data, please describe, for each new or expanded service, how the Proposed Project will meaningfully contribute to the Commonwealth's goals for cost containment.

The Commonwealth's cost containment goals emphasize low-cost initiatives that expand access to high-quality care, ultimately improving health outcomes and reducing overall healthcare spending. The Proposed Project directly supports these goals by expanding MRI capacity at Cape Cod Hospital with no upfront implementation costs and minimal ongoing operating expenses. This expansion will allow more patients to receive advanced imaging locally rather than traveling to potentially higher-cost centers farther away. By expanding access to MRI at the Hospital without a capital expenditure, the Proposed Project will reduce delayed or avoided care as well as care received outside of Cape Cod Healthcare, which is less likely to be coordinated by a patient's care team, and can result in higher overall health care costs.

Furthermore, improved access to timely MRI imaging can help prevent costly complications arising from delayed diagnoses. As previously noted in Section F1.b.i, delays in MRI can hinder timely and targeted therapeutic decision-making and may increase patients' hospital length of stay and subsequent total hospitalization costs.[36] As a result, timely access to MRI for trauma and stroke patients is necessary for both improving health outcomes as well as avoiding unnecessary hospitalization and treatment costs. For outpatients, long wait times often lead to patients canceling or missing appointments,[37] which further delays diagnosis and treatment. Earlier diagnosis allows treatment to begin before the patient's condition advances, requiring more costly care.[38] Without additional MRI capacity, patients will experience increased wait times as all MRI units are operating at a high capacity. Moreover, there will be no change in the Hospital's contracted rates for MRI services resulting from the Proposed Project. By maintaining current costs and increasing efficiency, the Proposed Project will have a positive impact on the Commonwealth's goals of cost containment. Without additional MRI capacity, patients will experience increased wait times as all MRI units are operating at a high capacity.

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[36] Shoghli, A., Chow, D., Kuoy, E., & Yaghmai, V. (2023). Current role of portable MRI in diagnosis of acute neurological conditions. *Frontiers in Neurology*, *14*, 1255858.

[37] *See, e.g.*, Majeed O AlRowaili et. al., *Factors Associated With No-Shows and Rescheduling MRI Appointments*, BMC HEALTH SERVICES RESEARCH (Dec. 1, 2016), https://pmc.ncbi.nlm.nih.gov/articles/PMC5133747/. *See also* Dania Daye et al., *Impact of Delayed Time to Advanced Imaging on Missed Appointments Across Different Demographic and Socioeconomic Factors*, JOURNAL OF THE AMERICAN COLLEGE OF RADIOLOGY (May 2018), https://www.sciencedirect.com/science/article/abs/pii/S1546144018300498#:~:text=A%20total%20of%2042%2C727%20patients,diagnostic%20imaging%20for%20all%20patients.

[38] *See, e.g.,* S. Cournane et. al., *Radiology Imaging Delays as Independent Predictors of Length of Hospital Stay for Emergency Medical Admissions*, CLINICAL RADIOLOGY (Sept. 2016), https://pubmed.ncbi.nlm.nih.gov/27210242/. *See also What Are The Risks of Delaying an MRI?*, GREAT LAKES MEDICAL IMAGING (Feb. 21, 2025), https://www.glmi.com/blog/what-are-the-risks-of-delaying-an-mri.

F2.b. **Public Health Outcomes:**

Describe, as relevant, for each new or expanded service, how the Proposed Project will improve public health outcomes.

The addition of a second MRI unit at the Hospital's main campus will significantly improve public health outcomes by ensuring access to advanced imaging and supporting timely diagnosis and treatment. As the Hospital Patient Panel continues to grow and age, particularly with the large elderly population in the service area, timely access to MRI imaging becomes increasingly critical. Many of the Hospital's patients face challenges with transportation and scheduling follow-up appointments. By improving MRI access, the Hospital can offer greater scheduling flexibility, allowing patients to receive necessary imaging promptly and reducing the risk of delayed or missed diagnoses. This is especially important for inpatients who may not return for outpatient imaging, as the second unit will allow for the completion of essential exams before discharge, thereby improving continuity of care and health outcomes.

Additionally, the expanded MRI capacity will improve capabilities to treat patients experiencing trauma and stroke. MRI is invaluable in trauma care for the evaluation of cervical spine injuries, providing detailed imaging that can identify injuries not visible on other modalities and directly informing therapeutic decisions.[39] For stroke patients, timely and accurate diagnosis is critical, as the window for effective treatment is only hours.[40] MRI offers superior sensitivity in detecting ischemic stroke damage compared to CT scans, accurately identifying strokes in 83% of cases compared to only 26% for CT.[41] Furthermore, MRI can distinguish between brain tissue that may benefit from stroke medication and that for which medication could be harmful and cause a hemorrhage, allowing doctors to more effectively treat their individual patients.[42] Additionally, MRI provides the most accurate images of the brain, and can be performed without X-rays or iodinated contrast.[43] By providing access to MRI, the Proposed Project will enable faster, more accurate diagnoses and more effective treatment planning for patients with traumatic injuries and acute stroke.

F2.c. **Delivery System Transformation:**

Because the integration of social services and community-based expertise is central to goal of delivery system transformation, discuss how the needs of their patient panel have been assessed and linkages to social services organizations have been created and how the social determinants of health have been incorporated into care planning.

The Applicant and the Hospital have implemented a comprehensive approach to assessing the needs of their patients and integrating SDoH into care planning. Universal screening for health-related social needs and SDoH is conducted for all admitted patients, as well as in ACO case

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[39] Daniel Popp et. al., *Necessity of Immediate MRI Imaging in the Acute Case of Severely Injured Patients*, MEDICINE (Sept. 18, 2021), https://pmc.ncbi.nlm.nih.gov/articles/PMC8470916/. *See also* S.R. Sarblah et. al., *Value of MRI In The Cervical Spine Imaging Series of Trauma Patients: A State-of-the-Art Review,* RADIOGRAPHY (May 2024), https://www.sciencedirect.com/science/article/pii/S1078817424000944.

[40] *New Guideline: MRI Better Than CT Scans At Diagnosing Stroke*, American Academy of Neurology (last accessed Oct. 16, 2025), https://www.aan.com/PressRoom/Home/PressRelease/849.

[41] *Id.*

[42] *MRI Analysis Could Prevent Brain Damage From Stroke, Stanford Study Finds*, Stanford Medicine (Nov. 1, 2006), https://med.stanford.edu/news/all-news/2006/11/mri-analysis-could-prevent-brain-damage-from-stroke-stanford-study-finds.html.

[43] *Magnetic Resonance Imaging for Stroke*, Northwestern Medicine (last accessed Oct. 16, 2025), https://www.nm.org/conditions-and-care-areas/tests/magnetic-resonance-imaging-for-stroke.

management and Applicant-employed primary care practices. Patients are screened for SDoH factors such as housing stability, food insecurity, transportation needs, financial resource strain, education, alcohol use, and physical activity.

When a patient is identified as being at moderate or high risk in one of the SDoH factors, referrals are made to appropriate community-based organizations. A list of relevant community resources is provided to patients at discharge and is maintained and regularly updated by the Applicant. Recommended community resources are tailored based on the patient's specific SDoH screening responses. Access to referrals to community resources for various social needs helps facilitate better care, which in turn leads to improved outcomes. This integrated approach to holistic care ensures that SDoH are systematically addressed and that patients have access to the social services and community resources necessary to support their health. Through the expansion of MRI at the Hospital, the Proposed Project will leverage the care coordination and community-based expertise available within and across Cape Cod Healthcare.

Factor 5: Relative Merit

F5.a.i **Describe the process of analysis and the conclusion that the Proposed Project, on balance, is superior to alternative and substitute methods for meeting the existing Patient Panel needs as those have been identified by the Applicant pursuant to 105 CMR 100.210(A)(1). When conducting this evaluation and articulating the relative merit determination, Applicant shall take into account, at a minimum, the quality, efficiency, and capital and operating costs of the Proposed Project relative to potential alternatives or substitutes, including alternative evidence-based strategies and public health interventions.**

Alternative Proposal 1: Do not reactivate the dormant MRI machine and continue operating one MRI machine at the Hospital's main campus.

Alternative Quality: Maintaining the status quo by not activating the dormant MRI unit fails to address persistent bottlenecks and capacity constraints. The Hospital's only MRI unit at its main campus is operating at 89% capacity. This high operating utilization can negatively impact patient care, particularly for those with urgent or complex diagnostic needs. Additionally, with only one operational unit, any unplanned downtime (e.g., for maintenance or repairs) will halt all MRI services at the Hospital's main campus, negatively impacting patient satisfaction and experience. The lack of redundancy also increases the risk of costly disruptions to hospital operations and continuity of patient care.

Alternative Efficiency: This alternative perpetuates inefficient use of resources by allowing a valuable asset (the existing, dormant MRI unit) to remain idle. The Applicant would miss an opportunity to optimize patient care and reduce wait times by making full use of its available resources. The Hospital is unable to shift outpatient cases to its satellites to create capacity as those units are operating at 89% capacity with extended hours. Moreover, the Hospital's projection indicates that future need for MRI will surpass the existing machines capacity in the near future. Lastly, continued overutilization of a single MRI unit is likely to shorten the machine's life expectancy requiring its replacement sooner than if two machines were used.

Alternative Capital Expenses: There are no immediate capital expenses under this alternative. However, as noted above, if the second MRI machine is not used in the near future, it will need to be removed, at a cost to the Hospital. Further, if the use of

second machine is only approved in several years, the Hospital will be required to incur substantial capital costs, including the purchase of a new machine and the construction of a new MRI suite, since the existing space will have been repurposed.

Alternative Operating Costs: There are no additional operating expenses under this alternative.

Alternative Proposal 2: Add an additional MRI unit at a satellite location of the Hospital's.

Alternative Quality: Installing an additional MRI unit at one of the Hospital's satellites would expand access for certain outpatient populations, improving convenience for routine imaging patients and allow the main campus to shift outpatient cases to the satellite creating capacity for emergency and inpatients. However, this alternative would not reduce scheduling disruptions for outpatients requiring specialized tests such as cardiac MRI or those with contraindications such as pacemakers or active implants. Furthermore, this alternative fails to address the need for MRI redundancy at the Hospital's main campus, leaving inpatients and complex cases without backup imaging capacity. This is particularly crucial in light of the increasing need for MRI by inpatients and emergency patients. As a result, many of the Hospital's patients would continue to face barriers to MRI access.

Alternative Efficiency: While this approach may alleviate capacity at the Hospital's main campus, it introduces logistical complexities related to scheduling and coordination between sites. The limited scope of services available at the satellite location (e.g., no CMR) means that not all patients could benefit under this alternative. The Hospital would also remain vulnerable to service interruptions without MRI redundancy, potentially exacerbating MRI inefficiencies and increasing wait times.

Alternative Capital Expenses: Significant capital expenses would include the purchase and installation of a new MRI unit at the satellite site, as well as the required facility renovations to accommodate another MRI unit

Alternative Operating Costs: Operating costs are likely to be similar to the Proposed Project, but could be significantly higher than the Proposed Project if the additional MRI machine is placed at a satellite location that does not currently provide MRI, which would require hiring a full complement of new staff for the MRI machine, rather than limited need for additional full-time employees under the Proposed Project.